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Climatic Perspectives

April 29 to May 5, 1991 **A weekly review of Canadian climate and water** *Vol.13 No.18*

Favourable outlook for growing season

In the last few weeks a significant amount of precipitation has fallen across the major agricultural areas of the country, providing in most areas an adequate supply of moisture to begin the spring growing season.

This is especially evident on the Prairies, where more heavy precipitation, in the form of both rain and snow, was recorded this week; but this time primarily across the central and eastern districts. Substantial snowfalls, in some cases as much as 30 cm, left portions of Manitoba with 5 to 15 centimetres of snow covering the ground during the middle of the period. Winnipeg received 54.4 mm of precipitation this week, as compared to the April and May averages of 38.5 and 65.7 millimetres, respectively. In Saskatchewan, last week's heavy dousing of precipitation, as much as 50 to 80 millimetres, was supplemented this week with an additional 10 to 20 millimetres. The precipitation has provided ample seed-bed moisture in most locations.

In Ontario, Quebec and the Maritimes generous amounts of precipitation fell in April, in some cases record values in excess of 100 mm. As a result, the moisture supply is more than adequate to start off the growing season.

Spring runoff in Atlantic Canada

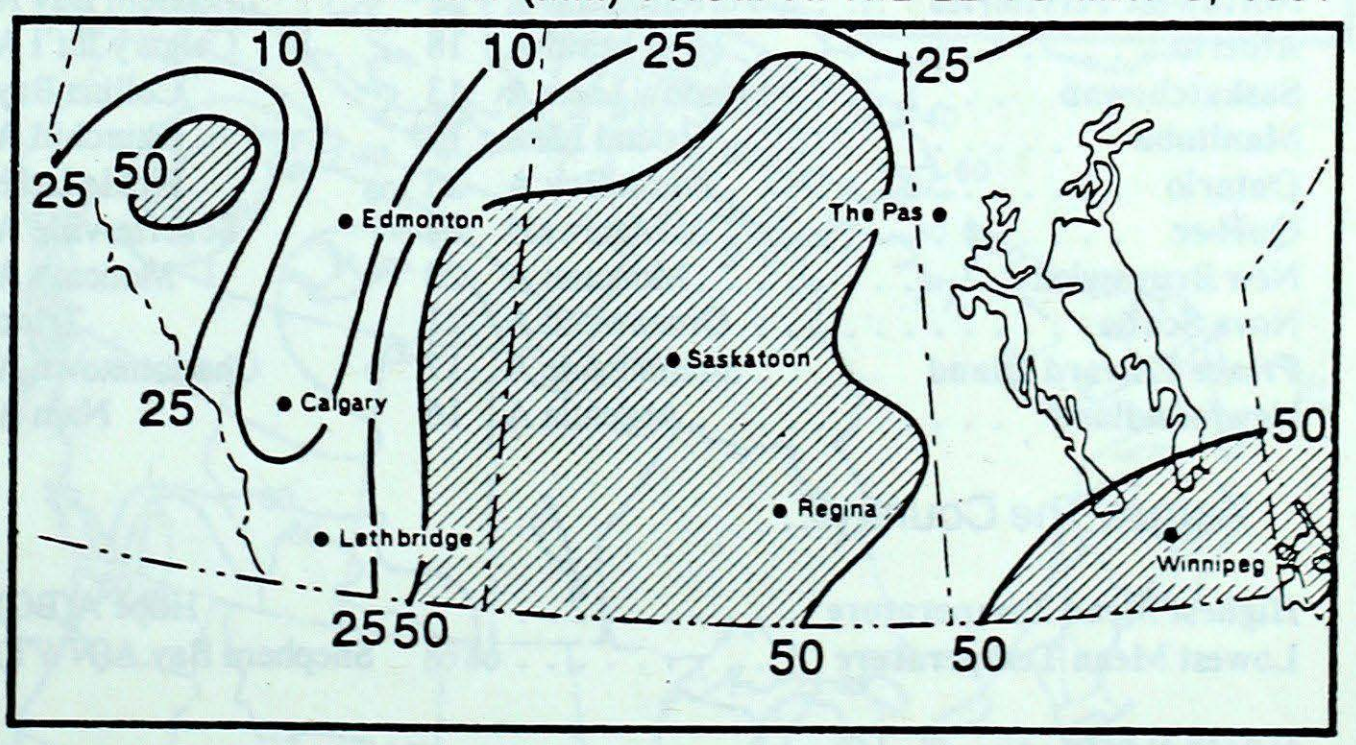
The release of the locked up winter precipitation, in the form of snow and ice, was not uniform in the Atlantic Region this spring season. Runoff increased in all areas of New Brunswick in April, while on the other hand there was decreased runoff in Prince Edward Island and eastern Newfoundland, when compared to one month earlier. Runoff in Nova Scotia was variable, compared to last month, rising in Cape Breton Island and northern and western mainland areas, and decreasing in eastern mainland areas. It is interesting to note that in New Brunswick, Prince Edward Island and Nova Scotia the spring freshet seems to have occurred approximately one month earlier than normal this year, probably due to the above normal temperatures experienced during February and March. In New Brunswick, the excessive flows that were recorded in the southwest Miramichi River Watershed normally do not occur until May. In Prince Edward Island, the flow in the Wilmot River was half the flow recorded in March. In Labrador, winter has not yet released its grip.

Water levels in ten storage reservoirs used by the Nova Scotia Power Corporation have risen by 13 percent from last month to approximately 80 percent capacity. This is considered good, and is considerably better than April 1987, when they only rose to 48 percent capacity.

A look ahead ...

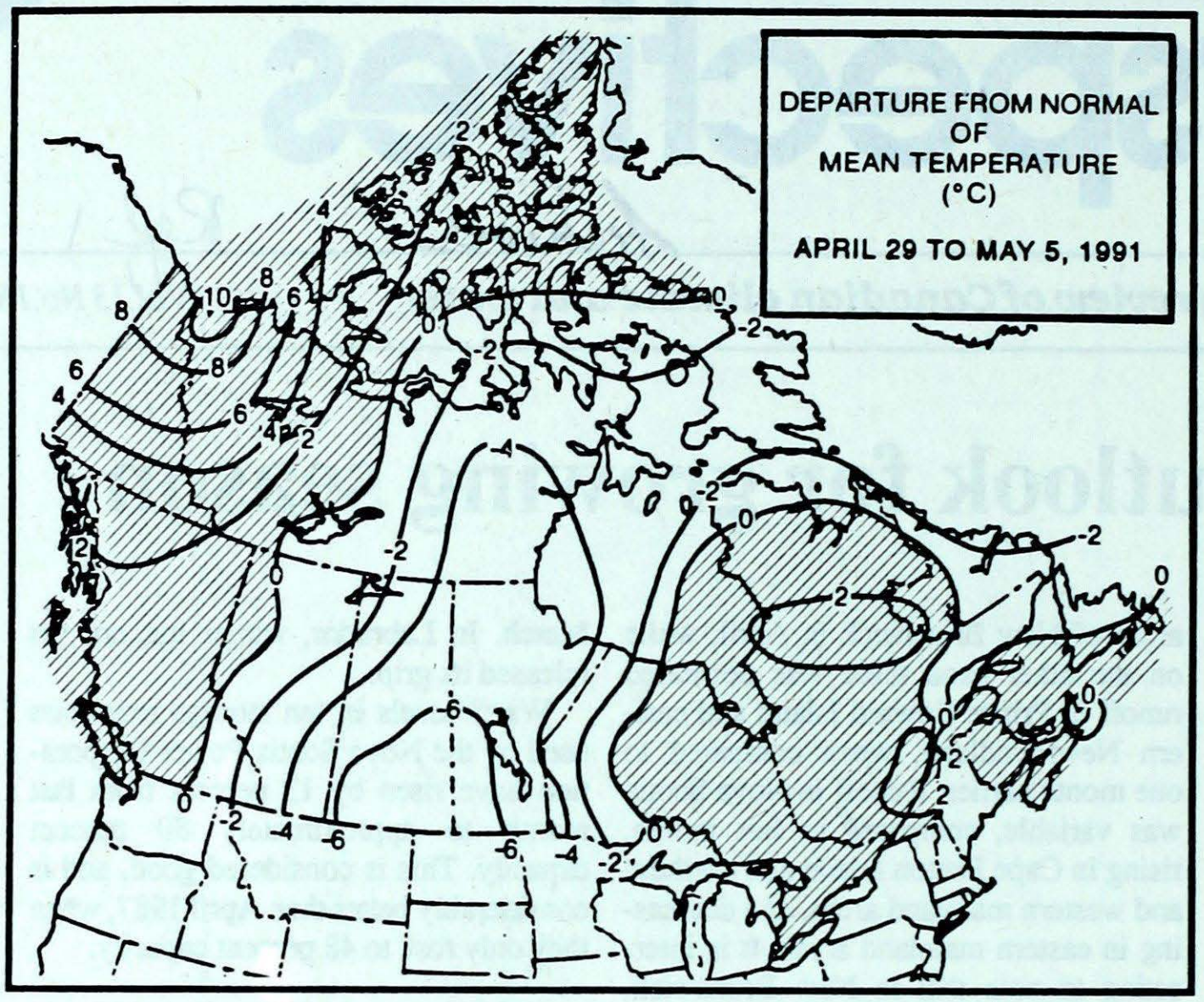
A high pressure area is expected to bring above-normal temperatures to the Yukon, the Prairies, Ontario and southeastern Quebec for the week of May 13. British Columbia is forecasted to have near normal values. For the same period, the temperature in the Atlantic provinces and northern Quebec should be below normal.

TOTAL PRECIPITATION (mm) FROM APRIL 22 TO MAY 5, 1991



In the last two weeks ample precipitation has fallen on the Prairies

Canada



Weekly normal temperatures (°C)

	max.	min.
Whitehorse A	9.6	-1.9
Iqaluit A	-3.0	-11.4
Yellowknife A	4.7	-5.2
Vancouver Int'l A	14.8	6.4
Victoria Int'l A	14.7	5.4
Calgary Int'l A	12.6	0.0
Edmonton Int'l A	14.4	0.7
Regina A	14.2	0.7
Saskatoon A	14.4	1.1
Winnipeg Int'l A	14.8	1.4
Ottawa Int'l A	15.5	3.8
Toronto (Pearson Int'l A)	15.3	3.4
Montréal Int'l A	15.5	4.2
Québec A	13.1	1.7
Fredericton A	13.3	1.2
Saint John A	11.8	1.0
Halifax (Shearwater)	10.8	1.9
Charlottetown A	9.6	0.7
Goose A	6.6	-2.2
St John's A	6.5	-0.6

Weekly temperature and precipitation extremes

	Maximum temperature (°C)		Minimum temperature (°C)		Heaviest precipitation (mm)	
British Columbia	Hope A	25	Puntzi Mountain (aut)	-5	Estevan Point (aut)	18
Yukon Territory	Watson Lake A	20	Shingle Point A	-15	Watson Lake A	1
	Whitehorse A	20				
Northwest Territories	Fort Simpson A	21	Shepherd Bay A	-30	Cape Dyer A	6
Alberta	High Level A	18	Calgary Int'l A	-8	Lethbridge	8
Saskatchewan	Meadow Lake A	13	Collins Bay	-12	Broadview	19
Manitoba	Island Lake	19	Churchill A	-19	Winnipeg A	54
Ontario	North Bay A	25	Pickle Lake	-6	Thunder Bay A	51
Québec	Maniwaki	24	Schefferville A	-14	Mont Joli A	35
New Brunswick	Moncton A	20	Moncton A	-6	Chatham A	62
Nova Scotia	Greenwood A	21	Truro	-6	Shearwater A	67
Prince Edward Island	Summerside A	17	Charlottetown A	-5	Summerside A	13
Newfoundland	Argentia A	16	Nain A	-17	Deer Lake A	25

Across The Country...

Highest Mean Temperature	Hope A(BC)	14
Lowest Mean Temperature	Shepherd Bay A(NWT)	-19

91/04/29-91/05/05

CLIMATIC PERSPECTIVES
VOLUME 13

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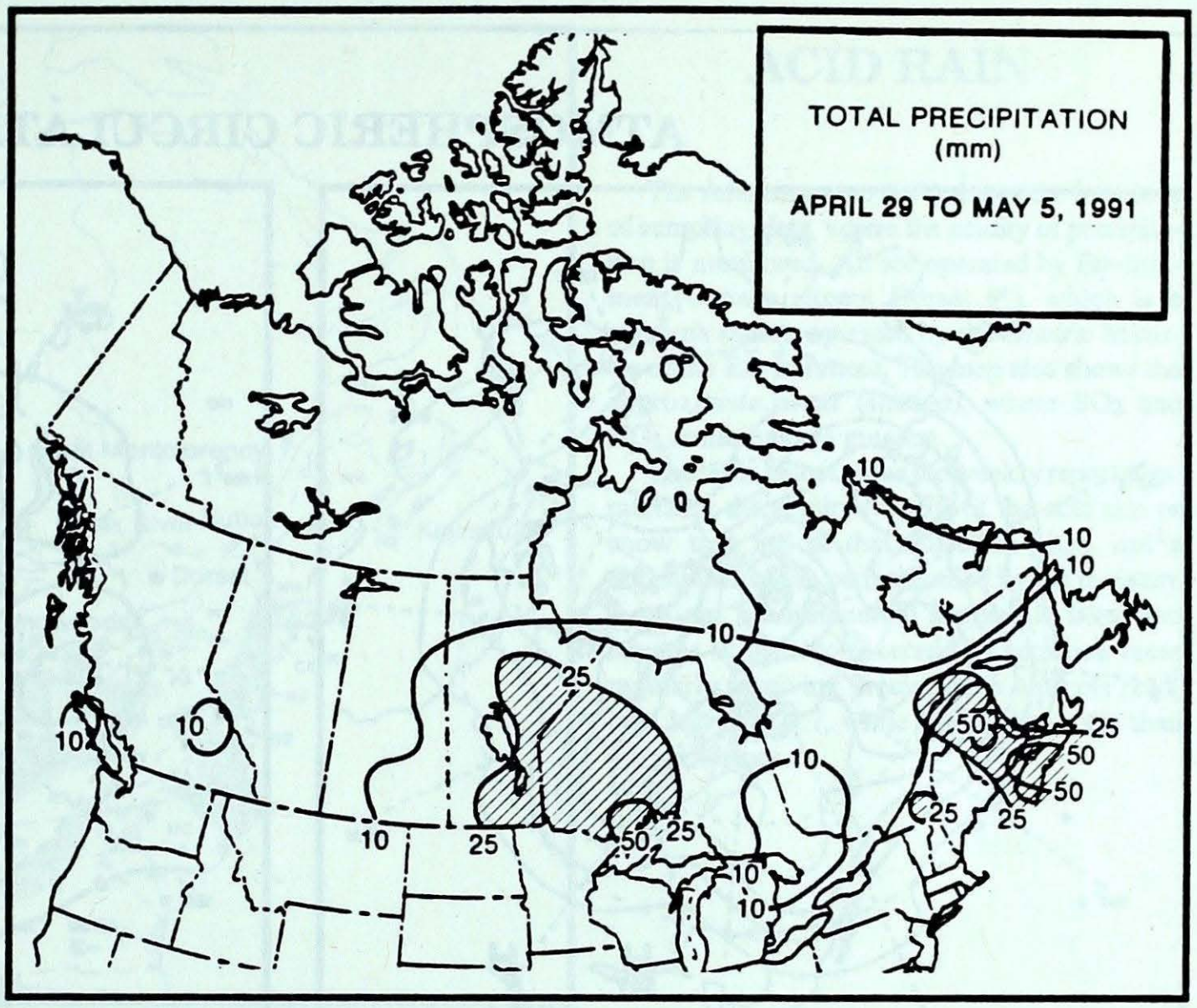

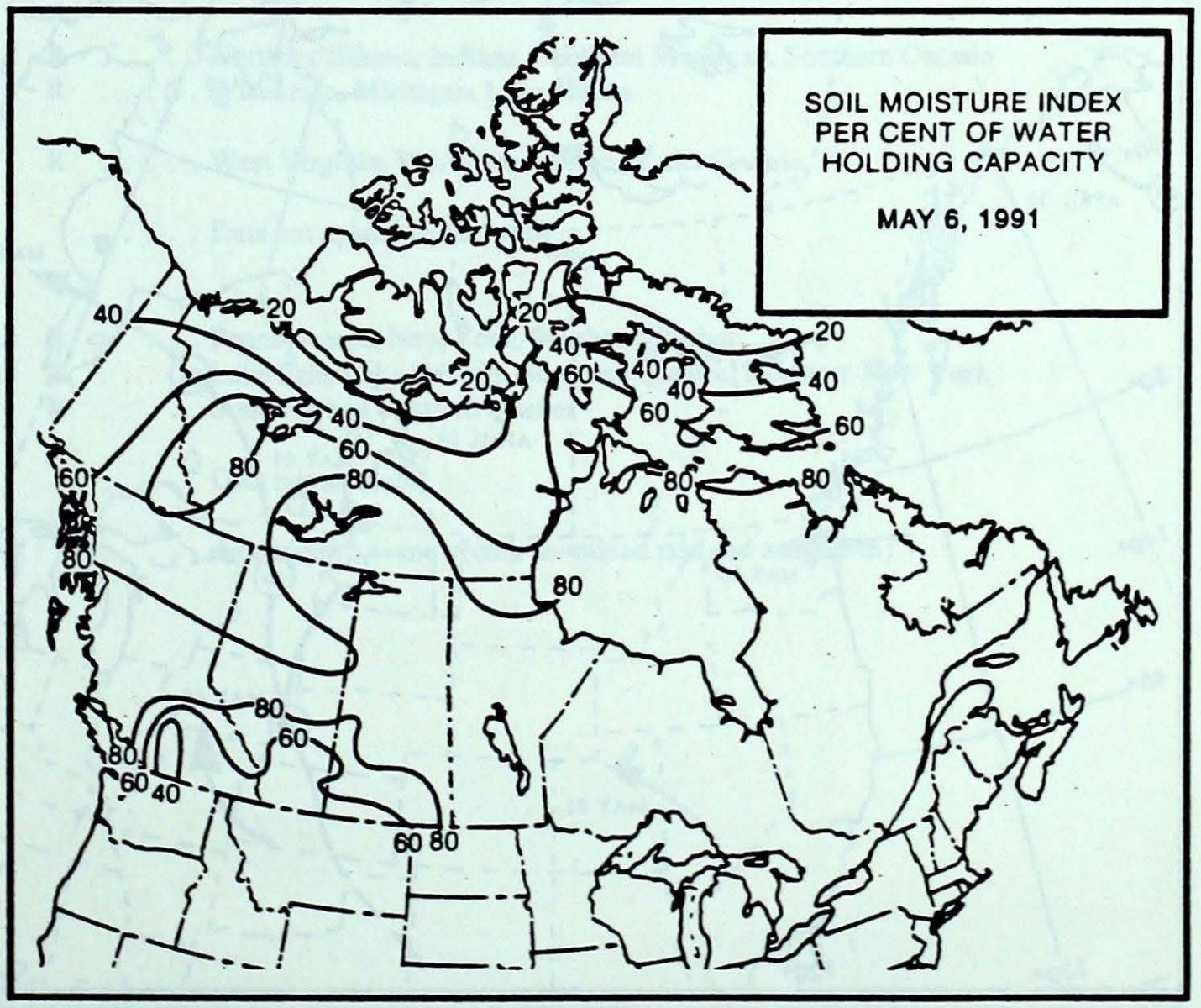

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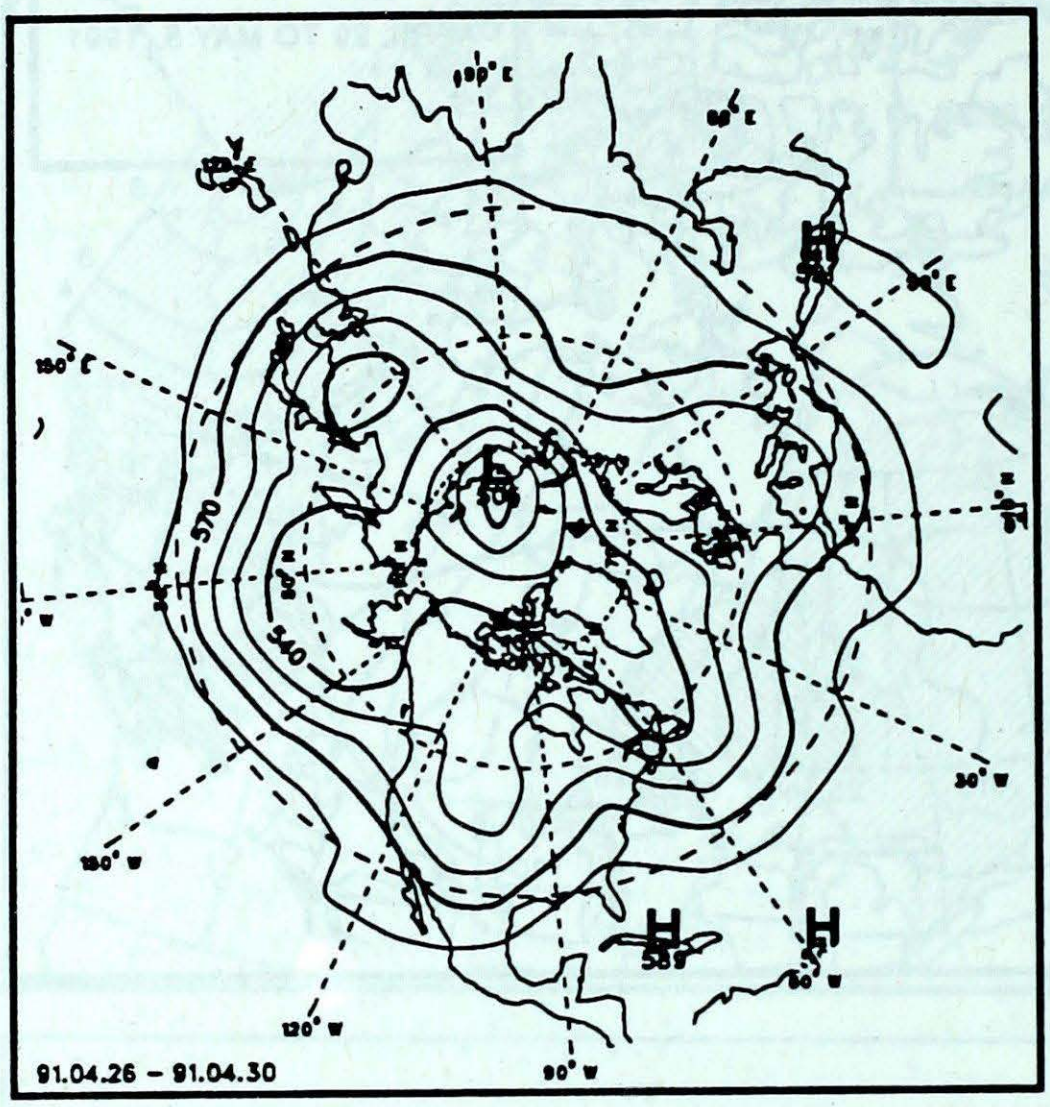
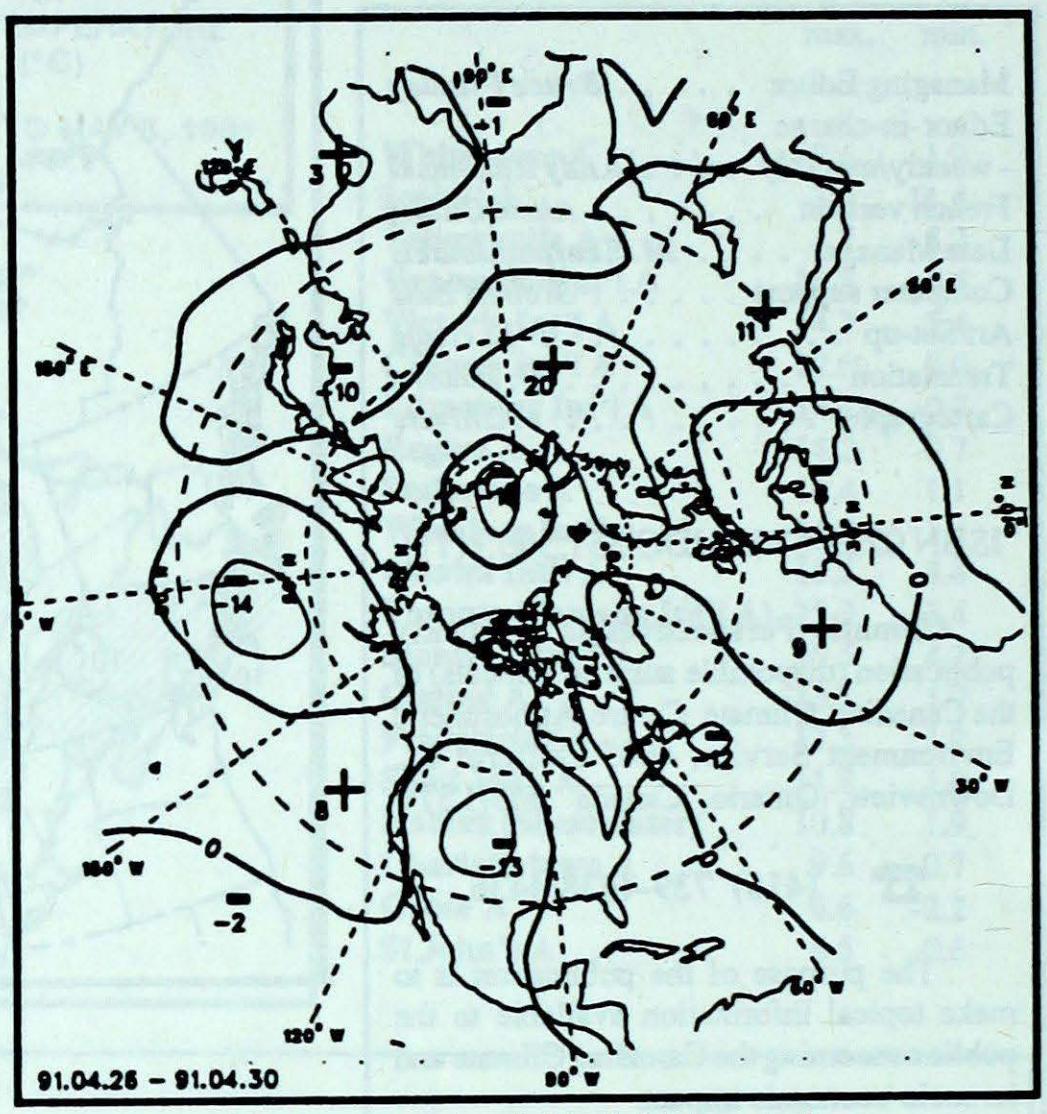
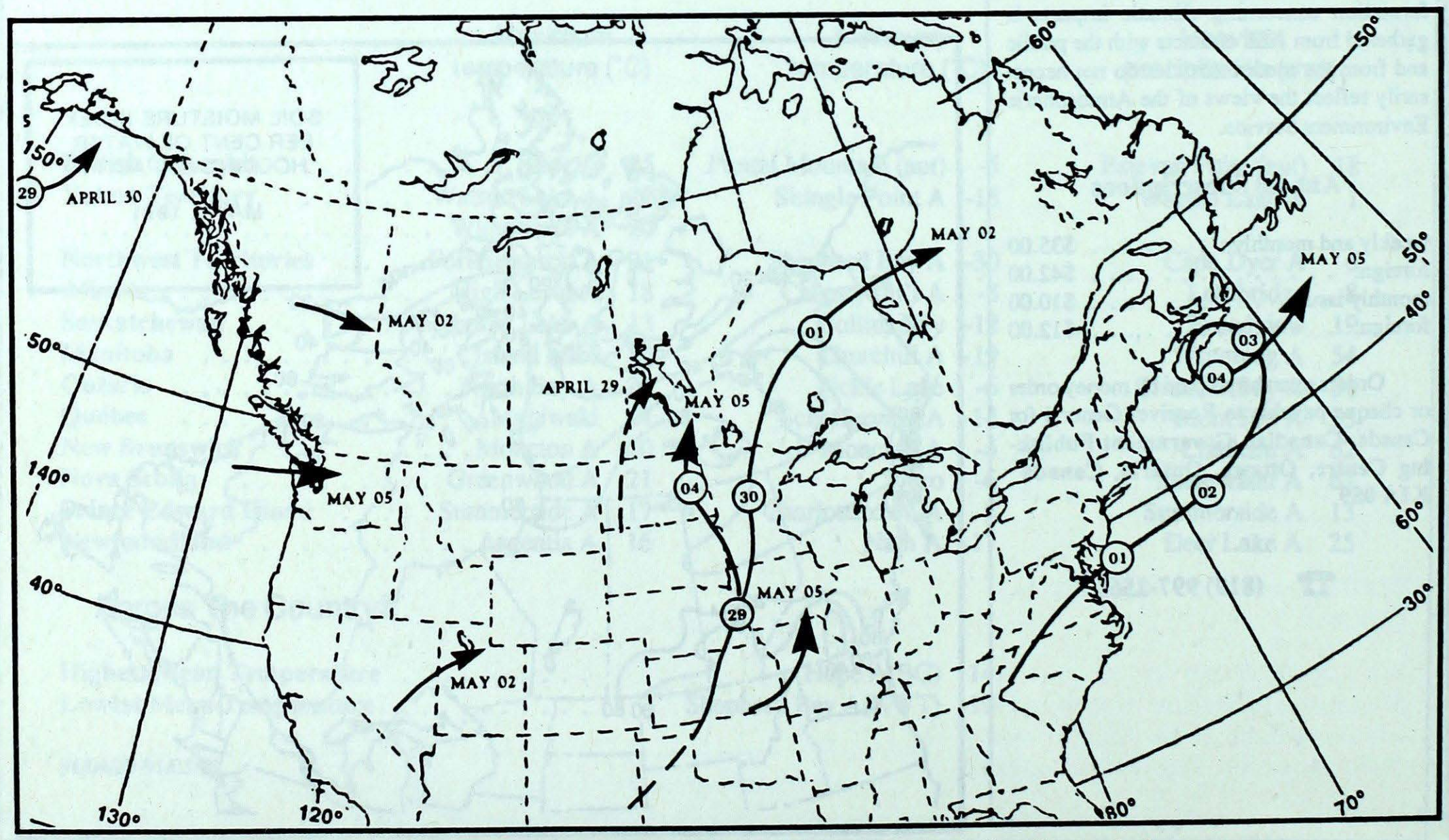


Mean geopotential height
50-kPa level (10-decametre intervals)

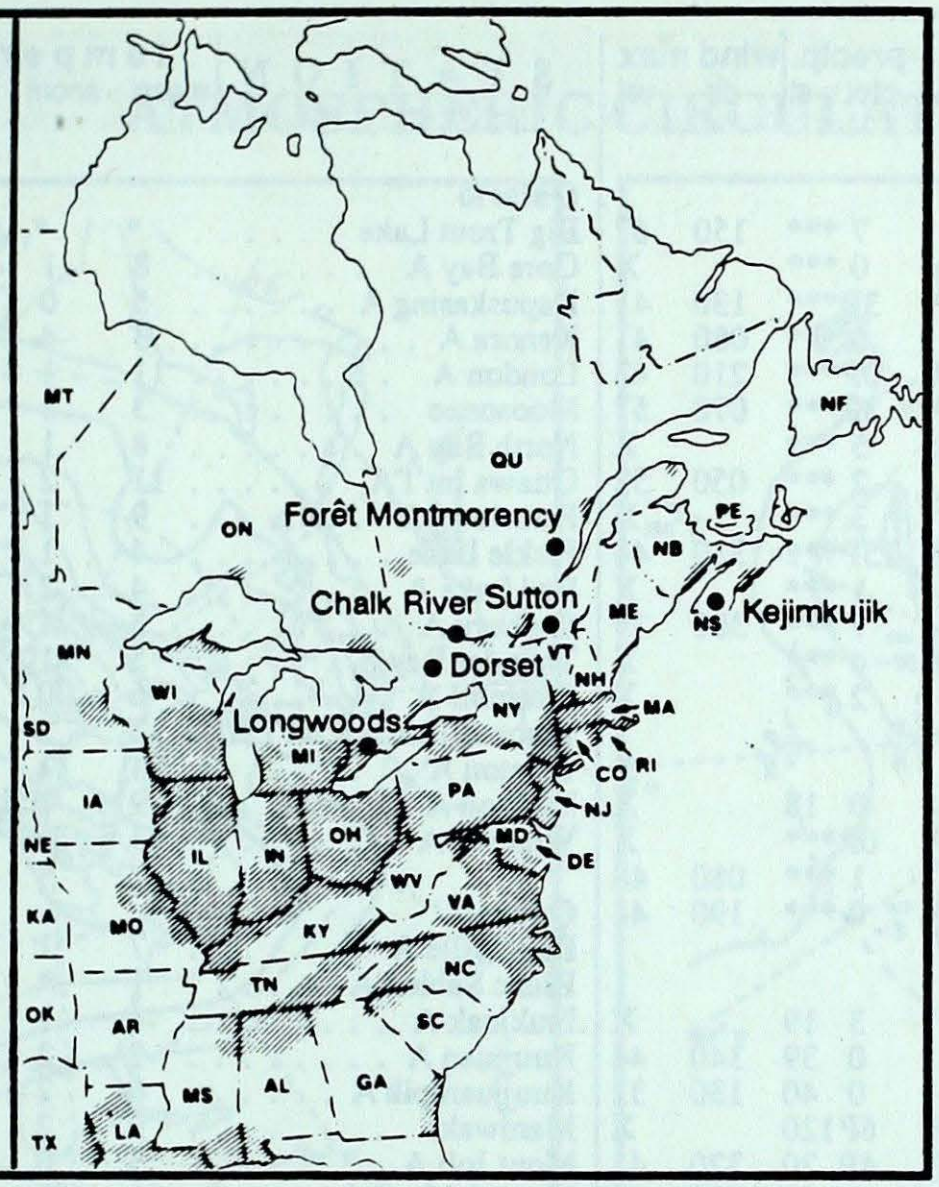


Mean geopotential height anomaly
50-kPa level (10-decametre intervals)



Tracks of low pressure centres at 12:00 U.T. each day during the period.

ALABAMA	—	AL
ARKANSAS	—	AR
CONNECTICUT	—	CO
DELAWARE	—	DE
FLORIDA	—	FL
GEORGIA	—	GA
ILLINOIS	—	IL
INDIANA	—	IN
IOWA	—	IA
KANSAS	—	KA
KENTUCKY	—	KY
LOUISIANA	—	LA
MAINE	—	ME
MANITOBA	—	MT
MARYLAND	—	MD
MASSACHUSETTS	—	MA
MICHIGAN	—	MI
MINNESOTA	—	MN
MISSISSIPPI	—	MS
MISSOURI	—	MO
NEBRASKA	—	NE
NEW BRUNSWICK	—	NB
NEWFOUNDLAND	—	NF
NEW HAMPSHIRE	—	NH
NEW JERSEY	—	NJ
NEW YORK	—	NY
NORTH CAROLINA	—	NC
NORTH DAKOTA	—	ND
NOVA SCOTIA	—	NS
OHIO	—	OH
OKLAHOMA	—	OK
ONTARIO	—	ON
PENNSYLVANIA	—	PA
PRINCE EDWARD ISLAND	—	PE
QUÉBEC	—	QU
RHODE ISLAND	—	RI
SOUTH CAROLINA	—	SC
SOUTH DAKOTA	—	SD
TENNESSEE	—	TN
TEXAS	—	TX
VERMONT	—	VT
VIRGINIA	—	VA
WEST VIRGINIA	—	WV
WISCONSIN	—	WI



ACID RAIN

The reference map (left) shows the locations of sampling sites, where the acidity of precipitation is monitored. All are operated by Environment Canada except Dorset (*), which is a research station operated by the Ontario Ministry of the Environment. The map also shows the approximate areas (shaded), where SO_2 and NO_x emissions are greatest.

The table below gives the weekly report summarizing the acidity (or pH) of the acid rain or snow that fell at the collection sites, and a description of the path travelled by the moisture laden air. Environmental damage to lakes and streams is usually observed in sensitive areas regularly receiving precipitation with pH readings less than 4.7, while pH readings less than 4.0 are serious.

Site	day	pH	amount		air path to site
					April 28 to May 4, 1991
Longwoods	01	5.0	5	R	. . . . . Indiana, Illinois, Southern Ohio, Southern Michigan
Dorset*	30	6.4	2	R	. . . . . Northern Illinois, Indiana, Southern Michigan, Southern Ontario
	01	4.6	6	R	. . . . . Wisconsin, Michigan, Lake Huron
Chalk River	29	4.1	7	R	. . . . . West Virginia, West Pennsylvania, Lake Ontario
Sutton					. . . . . Data not available this week
Montmorency	30	4.2	3	R	. . . . . Pennsylvania, New York, Southern Quebec
	01	4.5	13	R	. . . . . Lake Erie, Lake Ontario, Southern Quebec, Northern New York
	02	4.6	1	R	. . . . . Southern and Western Quebec
Kejimkujik					. . . . . Data not available
					. . . . . r=rain(mm), s=snow(cm), m=mixed rain and snow(mm)

STATION	temperature mean	anom	max	min	precip. ptot	st	wind max dir	vel
British Columbia								
Cape St James	8	1	14	5	7 ***		150	67
Cranbrook A	6	-3	15	-3	0 ***			X
Fort Nelson A	9P	3P	19P	-3P	3P***		130	41
Fort St John A	8	1	16	0	0 ***		080	41
Kamloops A	13P	1P	23P	1P	0P***		210	43
Penticton A	12P	1P	22P	1P	3P***		070	57
Port Hardy A	10	1	18	2	5 ***			X
Prince George A	8	1	19	-2	2 ***		050	52
Prince Rupert A	8	1	16	1	3 ***			X
Revelstoke A	10P	-1P	19P	2P	15P***		330	46
Smithers A	10	3	21	-2	1 ***			X
Vancouver Int'l A	11	1	20	4	7 ***		300	39
Victoria Int'l A	11	1	22	2	4 ***			X
Williams Lake A	8	1	17	-3	2 ***			X
Yukon Territory								
Komakuk Beach A	-5	6	4	-15	0	18		X
Teslin (aut)	6P	*	19P	-5P	0P***			X
Watson Lake A	7	4	20	-5	1 ***		080	48
Whitehorse A	7	3	20	-5	0 ***		190	44
Northwest Territories								
Alert	-14	3	-5	-22	3	19		X
Baker Lake A	-16	-5	-8	-23	0	39	340	44
Cambridge Bay A	-16	-2	-6	-25	0	40	130	32
Cape Dyer A	-12P	-2P	-4P	-18P	6P	120		X
Clyde A	-13P	-1P	-6P	-17P	4P	20	320	41
Coppermine A	-9	1	7	-19	0	60	200	37
Coral Harbour A	-14	-3	-5	-25	0	55	350	43
Eureka	-16	1	-11	-25	1	19	010	48
Fort Smith A	4P	0P	18P	-6P	0P	1		X
Hall Beach A	-15	-1	-6	-23	1	32	310	46
Inuvik A	6	12	19	-7	0	1		X
Iqaluit A	-9	-2	-1	-19	2	33	320	33
Mould Bay A	-13	3	-2	-24	0	20		X
Norman Wells A	8	8	20	-2	0 ***		100	35
Resolute A	-15	1	-9	-19	0	15	330	56
Yellowknife A	1	1	13	-11	0 ***		170	33
Alberta								
Calgary Int'l A	4	-2	15	-8	4 ***		350	67
Cold Lake A	3	-4	14	-4	0 ***		350	37
Edmonton Namao A	5	-3	14	-4	0 ***		330	52
Fort McMurray A	6	-1	17	-5	0 ***		360	39
High Level A	7	0	18	-3	0 ***		190	33
Jasper	5	-1	15	-5	9 ***			X
Lethbridge A	4	-4	17	-4	8 ***		350	56
Medicine Hat A	4	-6	15	-4	4 ***		330	46
Peace River A	7	1	17	-4	0 ***		130	37
Saskatchewan								
Cree Lake	0	-4	11	-10	1	1	040	48
Estevan A	1	-7	7	-4	10	1	310	61
La Ronge A	1	-4	10	-7	5 ***		360	33
Regina A	1	-7	10	-5	18	1	320	57
Saskatoon A	2	-6	12	-4	8 ***		360	39
Swift Current A	0	-7	9	-5	10	1	320	52
Yorkton A	0	-7	6	-5	13	2	340	52
Manitoba								
Brandon A	1	-7	11	-3	18	4	330	74
Churchill A	-10	-5	-3	-19	2	13	010	69
Lynn Lake A	-3	-6	9	-11	8 ***		350	50
The Pas A	0	-5	9	-6	20	1	340	59
Thompson A	-3	-5	6	-11	35	4	360	70
Winnipeg Int'l A	3	-5	17	-3	54	1	330	83

STATION	temperature mean	anom	max	min	precip. ptot	st	wind max dir	vel
Ontario								
Big Trout Lake	*	*	*	3P	13P***		090	69
Gore Bay A	8	1	18	-2	12 ***		100	56
Kapuskasing A	5	0	25	-6	15 ***			X
Kenora A	3	-4	14	-3	37 ***		320	35
London A	11	1	21	2	11 ***		230	80
Moosonee	3	1	17	-5	21 ***		330	46
North Bay A	8	1	25	-3	15 ***		250	54
Ottawa Int'l A	11	2	22	2	10 ***		250	52
Petawawa A	9	1	21	-3	3 ***		290	54
Pickle Lake	4	1	15	-6	36	1	110	33
Red Lake A	4	-2	19	-3	36	1	120	35
Sudbury A	8	1	24	-4	7 ***		200	65
Thunder Bay A	5	-1	12	-4	51 ***		320	43
Timmins A	6	0	24	-6	8 ***		220	59
Toronto(Pearson Int'l A)	11	2	24	1	12 ***		230	76
Trenton A	11	1	23	1	14 ***		250	63
Wiarton A	9	1	21	1	9 ***		220	69
Windsor A	13	1	23	4	16 ***		240	80
Québec								
Bagotville A	7	1	19	-2	13 ***		070	56
Blanc Sablon A	1	*	6	-5	3	7	360	78
Inukjuak A	-4	1	6	-11	0	29	040	61
Kuujjuaq A	-2	2	9	-12	6	14	340	41
Kuujjuarapik A	0	2	12	-11	21	5	120	54
Maniwaki	9	2	24	-2	11 ***		220	39
Mont Joli A	5	0	12	-1	35 ***		130	44
Montréal Int'l A	11	1	22	3	18 ***		240	48
Natashquan A	3	1	15	-6	2	5		X
Québec A	11	3	23	2	19 ***		250	57
Schefferville A	-2	1	8	-14	3	61	340	35
Sept-Îles A	3	0	11	-3	10	2	010	46
Sherbrooke A	9	2	22	-2	35 ***			X
Val-d'Or A	6	1	23	-6	6 ***		230	46
New Brunswick								
Charlo A	6	1	14	-4	33	1	080	41
Chatham A	7	1	18	-4	62 ***		050	70
Fredericton A	9	1	19	-3	27 ***		020	56
Moncton A	7P	1P	20P	-6P	38P***		020	56
Saint John A	7	1	17	-3	28 ***		020	59
Nova Scotia								
Greenwood A	9	1	21	-4	50 ***		180	57
Shearwater A	7	0	16	-3	67 ***		320	63
Sydney A	4	0	13	-5	22 ***		350	67
Yarmouth A	8	1	15	1	10 ***		360	46
Prince Edward Island								
Charlottetown A	5	0	16	-5	8 ***		050	67
Summerside A	6	0	17	-3	13 ***		360	54
Newfoundland								
Cartwright	-1	-2	7	-8	13	156	320	74
Churchill Falls A	-1	0	12	-15	6	66	340	44
Gander Int'l A	3	0	13	-6	12	1	330	46
Goose A	1	-1	11	-9	0	1	330	37
Port Aux Basques	4	1	10	-3	11 ***		040	56
St John's A	4	1	14	-5	16 ***		330	37
St Lawrence	5	1	15	-4	20 ***			X
Wabush Lake A	2	3	12	-10	5	1	180	32

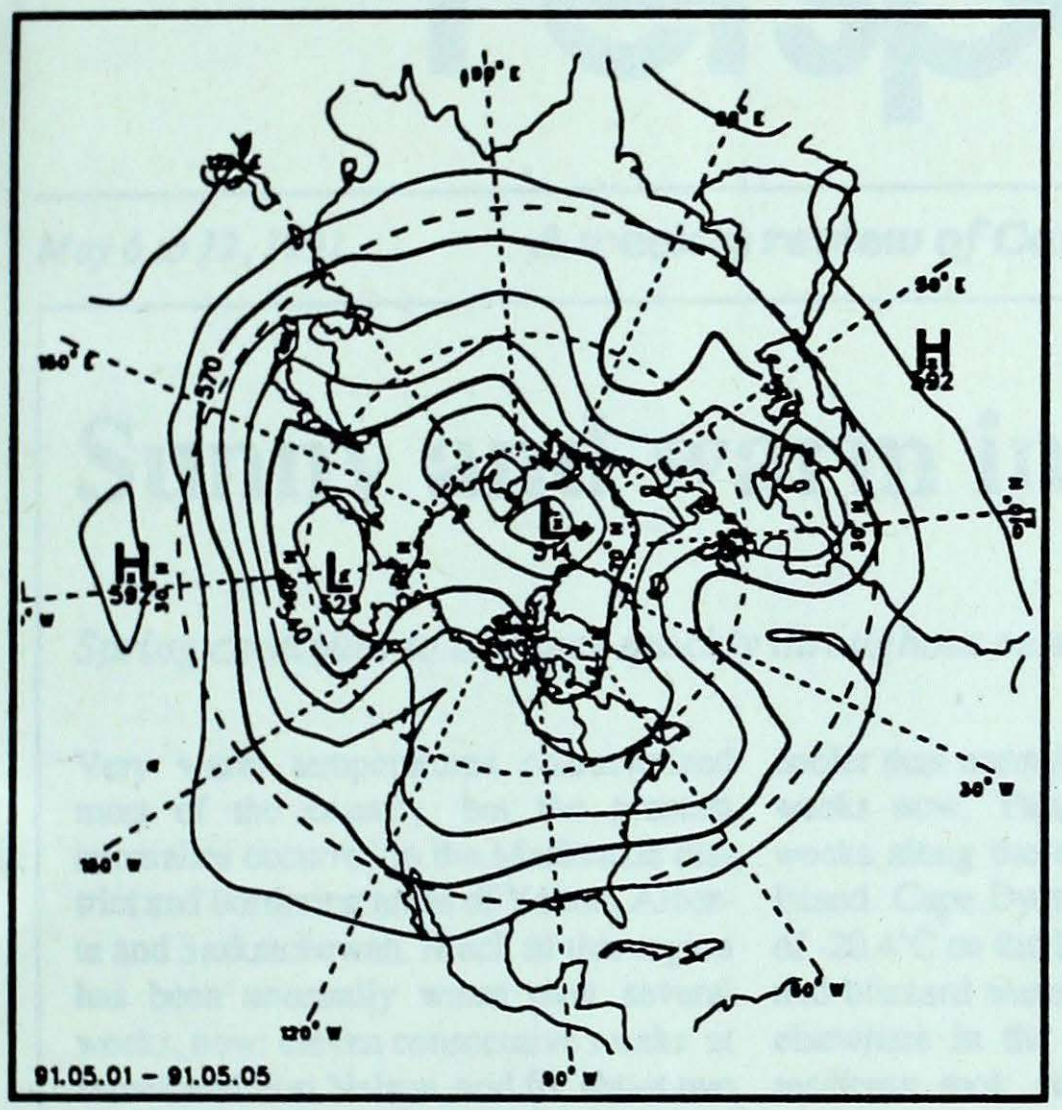
91/04/29-91/05/05

mean = mean weekly temperature, °C
max = maximum weekly temperature, °C
min = minimum weekly temperature, °C
anom = mean temperature anomaly, °C

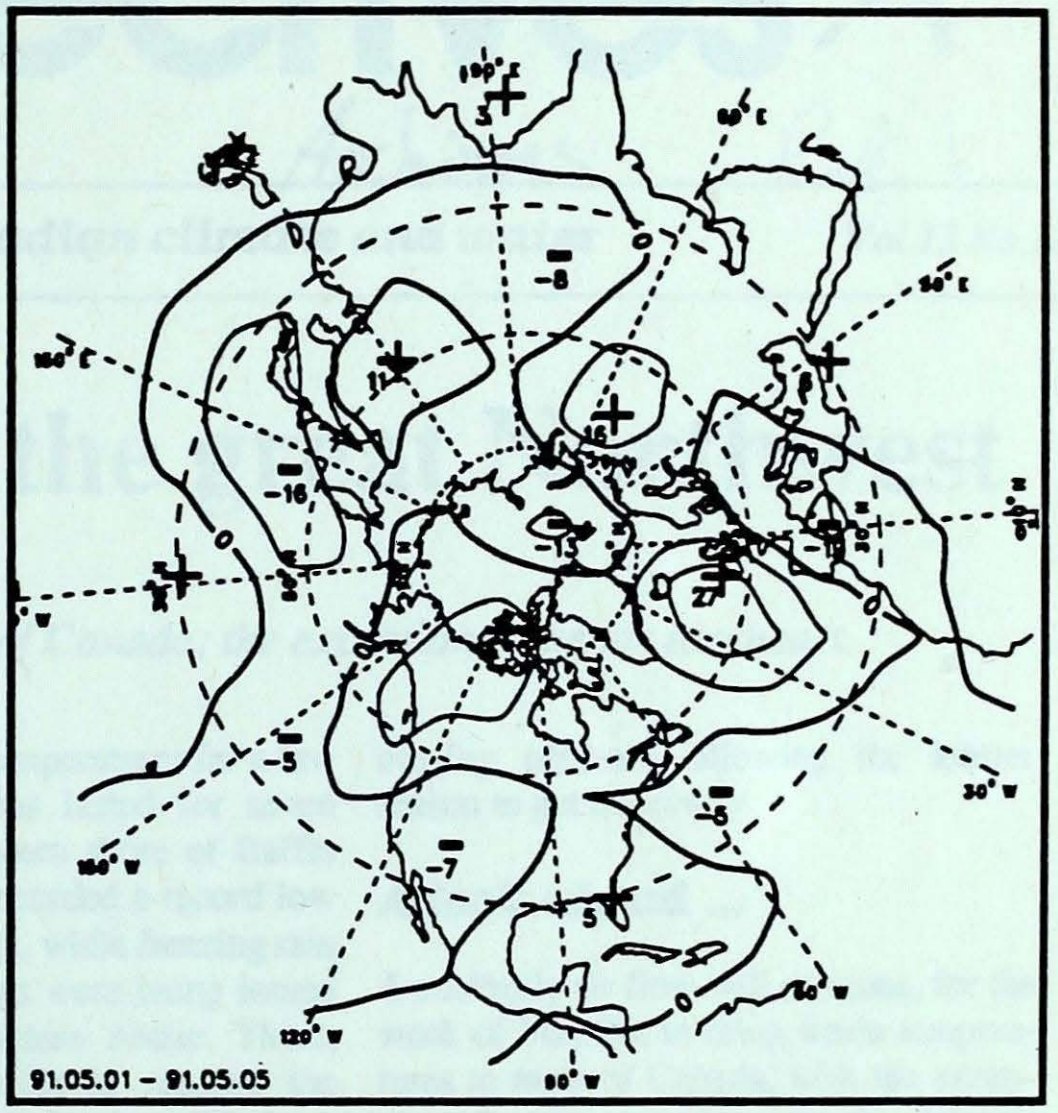
ptot = weekly precipitation total in mm
st = snow thickness on the ground in cm
dir = direction of max wind, deg. from north.
vel = wind speed in km/h

— Annotations —
X = no observation
P = less than 7 days of data
* = missing data when going to printing.

ATMOSPHERIC CIRCULATION



Mean geopotential height
50-kPa level (10-decametre intervals)



Mean geopotential height anomaly
50-kPa level (10-decametre intervals)